



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,123	06/29/2001	Katsumi Kikuchi	Q65269	5729

7590 05/30/2003  
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037-3213

EXAMINER

COLEMAN, WILLIAM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/894,123

Applicant(s)

KIKUCHI ET AL.

Examiner

W. David Coleman

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 and 42-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 15-17 and 42-45 is/are rejected.
- 7) ☒ Claim(s) 4 and 9-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed March 27, 2003 have been fully considered but they are not persuasive.

Applicants contend that Baba U.S. Patent 6,317,333 B1 in view of Suzuki et al., U.S. Patent 5,977,633 does not teach Applicants claimed invention, "a multilayer wiring film having a first surface in contact with a metal base plate, the first surface having a plurality of first metal pads in a region exposed by an opening in the meat base plate".

In response to Applicants contention that the combined teachings of Baba in view of Suzuki fails to teach Applicants claimed invention, please note that Applicants claim 1 is merely an intermediate product for use in making a final product that has no specific, substantial and credible utility (see MPEP 2107.01[R-1])

Applicants further contend that because Baba fails to use the phrase, "metal pads" Applicants claims are patentable. However, Baba clearly discloses metal pads as disclosed in FIG. 2 where solder bumps 5 are electrically attached to lines 9 (column 4, lines 28-30). It is well known that a pad is generally accepted as an item having surface area. This surface area makes contact with the solder bumps 5 as shown in FIG. 2.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

Art Unit: 2823

USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Suzuki is combined with Baba for the teachings that the ring in Baba would obviously be a material consisting of metal.

### ***Information Disclosure Statement***

The information disclosure statement filed February 12, 2003 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Rejections - 35 USC § 103***

1. Claims 1-3, 5-8, 15-17 and 42-45 are rejected under 35 U.S.C. 103(a) as being obvious over Baba, U.S. Patent 6,317,333 B1 in view of Suzuki et al., U.S. Patent 5,977,633.
2. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the

Art Unit: 2823

application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

3. Pertaining to claim 1, Baba discloses a semiconductor device substantially as claimed. See **FIGS. 1 and 2** where Baba teaches a semiconductor package board comprising:

a metal base plate **4** having an opening suited for receiving  
therein a semiconductor chip **2** and  
a multilayer wiring film **1** (as seen in **FIG. 2**) formed on said metal base plate,  
said multilayer wiring film having a first surface in contact with said metal  
base plate and mounting thereon a plurality of first metal pads **9** within a  
region exposed from said opening of said metal base plate. However, Baba fails to  
specifically state that the base plate is metal. Suzuki discloses a metal base plate (see FIG. 5 of  
Suzuki). In view of Suzuki, it would have been obvious to one of ordinary skill in the art to  
incorporate the metal base plate of Suzuki into the Baba semiconductor device because the  
semiconductor device structure is high in efficiency of heat radiation (column 2, lines 58-60).

4. Pertaining to claim 2, Baba teaches the semiconductor package board according to claim 1, wherein said multilayer wiring film includes a plurality of wiring layers and a plurality of

Art Unit: 2823

insulating layers alternately stacked upon one another, via holes formed in said plurality of insulating layers for interconnecting, said plurality of wiring layers, and a plurality of second metal pads formed on a second surface of said multilayer wiring film opposite to said first surface, and wherein said second metal pads are electrically connected to said first metal pads through said wiring layers and said via holes.

5. Pertaining to claim 3, Baba teaches the semiconductor package board according to claim 1, wherein said multilayer wiring film has a metallic film in contact with a periphery of said opening of said metal base plate.

6. Pertaining to claim 5, Baba fails to teach the semiconductor package board according to claim 1, wherein said metal base plate comprises at least one metal selected from the group consisting of stainless steel, iron, nickel, copper, and aluminum, or an alloy thereof. Suzuki teaches wherein the metal base comprises copper. In view of Suzuki, it would have been obvious to one of ordinary skill in the art to incorporate copper into the Baba semiconductor device because the semiconductor device structure is high in efficiency of heat radiation (column 2, lines 58-60).

7. Pertaining to claim 6, Baba teaches the semiconductor package board according, to claim 1, wherein said first metal Pads are covered by a surface layer comprising at least one metal selected from the group consisting of gold, tin, and solder, or an alloy thereof.

Art Unit: 2823

8. Pertaining to claim 7, Baba teaches the semiconductor package board according to claim 2, wherein each of said insulating layers comprises one or more of organic resins selected from the group consisting of an epoxy resin, an epoxy acrylate resin, an urethan acrylate resin, a polyester resin, a phenol resin, a polyimide resin, a benzocyclobutene (BCB), and a polybenzoxazole (PBO).

9. Pertaining to claim 8, Baba teaches the semiconductor package board according to claim 2, further comprising a carrier base mounted on said second surface of said multilayer wiring film and connected to said second metal pads.

10. Pertaining to claim 15, Baba teaches a semiconductor device comprising the semiconductor package board according to claim 1, and a semiconductor chip disposed within said opening and connected to said first metal pads.

11. Pertaining to claim 16, Baba teaches the semiconductor device according to claim 15, wherein said semiconductor chip is flip-chip bonded to said first metal pads by a material made of either a metal having a low melting point or a conductive resin.

12. Pertaining to claim 17, Baba teaches the semiconductor device according to claim 15, wherein said semiconductor chip is connected to said multilayer wiring film by at least one material selected from the group consisting of a metal having a low melting point, an organic resin, and a resin containing a metal.

Art Unit: 2823

13. Pertaining to claim 44, Baba teaches the semiconductor package board according to claim 1, wherein the surface of said first metal pads is recessed from the surface of said multilayer wiring film.

14. Pertaining to claim 45, Baba teaches a semiconductor package board comprising:

a base plate having an opening; and

a multilayer wiring film formed on said metal base plate, said multilayer wiring film having a first surface in contact with said base plate and mounting thereon a plurality of first metal pads (line 9 of Baba) within a region exposed from said opening of said metal base plate, wherein surface of the first metal pads is recessed from the surface of the multilayer wiring film.

However, Baba fails to specifically state that the base plate is metal. Suzuki discloses a metal base plate (see FIG. 5 of Suzuki). In view of Suzuki, it would have been obvious to one of ordinary skill in the art to incorporate the metal base plate of Suzuki into the Baba semiconductor device because the semiconductor device structure is high in efficiency of heat radiation (column 2, lines 58-60).

#### ***Claim Rejections - 35 USC § 101***

15. Claims 42 and 43 are rejected under 35 U.S.C. 101 because Applicants claim 1 is merely an intermediate product for use in making a final product that has no specific, substantial and credible utility (see MPEP 2107.01[R-1])

#### ***Objections***

16. Claims 4, 9, 10, 11, 12, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



***Conclusion***

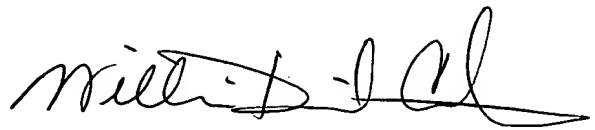
17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
18. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004. The examiner can normally be reached on 9:00 AM-5:00 PM.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Application/Control Number: 09/894,123

Page 9

Art Unit: 2823

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read "W. David Coleman", with a long horizontal flourish extending to the right.

W. David Coleman  
Primary Examiner  
Art Unit 2823

WDC  
May 26, 2003